Space Weather Forecast

Issued on Thursday, 13 January 2022 at 12:21 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Minor Storm intervals likely, most probably day 3 (15th).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity was Low in the last 24 hours. Two Common-class flare were observed from the far side around 13/0200 UTC and 13/1200UTC. There are a number of sunspot regions on the Earth-facing side. These are all generally mature and inactive.
No Earth-directed coronal mass ejections (CMEs) have been observed

Solar Wind / Geomagnetic Activity: Solar winds speeds are currently Low at around 370 km/s. The total magnetic field strength carried by the wind has remained weak, with no notable strength in the important north-south direction. Geomagnetic activity remained Quiet.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background with no solar radiation storms occurring.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to be Low or Very Low. There is an increasing, but still slight chance, of this becoming Moderate by day 3 (15th) as sunspot regions currently on the far side rotate onto the Earth-side.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs. Solar winds are expected to remain Low until the arrival of the fast winds from a coronal hole. This is most likely to occur on day 3 (15th). Quiet geomagnetic activity expected until this arrival, becoming Active to Minor Storm as it occurs, with a slight chance of Moderate Storms. Activity then becoming Quiet to Unsettled, with Active intervals and slight chance of Minor Storms during day 4 (16th)

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to remain at background with no solar radiation storms occurring.

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Met Office Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	10	40	20
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	10	10	15	15
Very Active	R3 to R5 X	No	1	2	2	2

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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